

Watershed Connections

Delivering News to the Carson River Watershed Community

-Photo by Julie Fair

Inside this issue:

Restoring Meadows in the Upper Carson River	1
Watershed Projects in Ash Canyon	2
Welcome New AmeriCorps Members	3
Comments Sought on Carson City Stormwater Management Program Update	4
Conserve Carson River Work Days 2016	5
Upcoming Events	8

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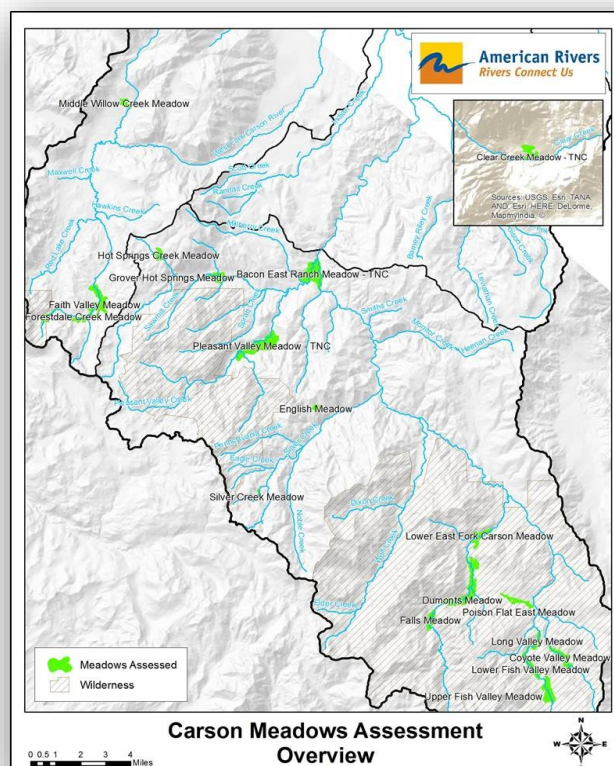
Restoring Meadows in the Upper Carson River Watershed

By Julie Fair, American Rivers

It is currently estimated that 40 to 60 percent of meadows in the Sierra Nevada need restoration primarily due to impacts from historic land uses. Meadows in the Sierra Nevada provide a suite of ecological and hydrologic benefits including increasing groundwater storage, improving late season base flows, and reducing flooding by moderating peak flows. Bank vegetation along creeks shade and cool water temperatures, while providing important riparian and instream habitat. American Rivers, a national river conservation organization, is leading the effort to increase the pace and scale of meadow restoration in the Upper Carson River Watershed. The restoration projects outlined below are only possible through collaborations with many local partners and stakeholders. Key collaborators for our upper Carson River watershed projects include the US Forest Service, CA Dept. of Fish and Wildlife, Alpine Watershed Group, and Friends of Hope Valley.

Hope Valley Meadow Restoration

American Rivers' first meadow restoration project in the Upper Carson began in 2011 with the restoration planning for Hope Valley Meadow in partnership with the Alpine Watershed Group and Friends of Hope Valley. Road infrastructure, historic grazing, and other land uses caused the stream channel to be disconnected from its floodplain, incise the riverbed, and erode the rivers banks (< 10 feet in places). The



Carson Watershed Meadow Assessment Map
by American Rivers

(Continued on page 6)

Watershed Projects in Ash Canyon, Carson City

By: Ann Bollinger and Richard Wilkinson

Over the past three years, Carson City has been conducting erosion stabilization projects in Ash Canyon located on the west side of Carson City. Ash Creek is a perennial stream and important to Carson City's drinking water supply. The projects are an ongoing effort to meet objectives identified in the Ash Canyon Erosion Control Plan written by Resource Concepts, Inc. in 2014. Past projects have included "road" closures and rehabilitation, repairing waterbars, slope stabilization, rip-rapped ditches, and education signage. Grants from the Nevada Division of Environmental Protection (NDEP), 319 Nonpoint Source Grant Program have played a significant role in completing this plan.



Ash Canyon Restoration Site 1—Erosion Control
Photo by Richard Wilkinson



Ash Canyon Restoration Site 2— Road Closure
Photo by Richard Wilkinson

In fall of 2016, the Carson City Open Space Program started working with high school student and Eagle Scout candidate Jake Kordonowy. Jake expressed his interest and willingness to assist with a seeding and planting project in the lower section of the watershed. In preparation, Carson City worked with Horizon Construction to place logs and block access to the reclamation areas, place filtration waddles, scarify soils, and dig holes for the plantings. Jake was successful in recruiting 45 volunteers from local scout troops for his project on Saturday, October 22nd. Jake and his volunteers planted 498 plants (native grasses, shrubs, and trees) and reseeded

(Continued on next page)

2017 Carson Watershed Management Forum

US EPA Mercury Superfund Bus Tour

February 21st, 2017

The full day tour will include historic source sites and areas under investigation, with discussions on the remedial investigation and the feasibility study. On February 22nd a two hour US EPA Mercury Workshop will seek ideas to address mercury contamination.

2-Day Forum with Mercury Workshop

February 22nd and 23rd, 2017

Presentations on restoration, source water protection, EE education, invasive species, floodplain planning and mapping, along with many other watershed topics!

The events are free - @ the Auditorium of the Carson City Community Center

[Click Here to RSVP](#) or Contact: Shane@cwdsd.org P: (775) 887-9005

Interested in presenting? Contact Shane!

The Eureka Mill on the Carson River





approximately 6,000 square feet of bare soil. The Nevada Division of Forestry donated seed, pine logs and staff to assist with the planting project. The Nevada Division of State Lands and the Masonic Lodge granted access and graciously participated in the watershed protection efforts. Carson City appreciates all those who made this and all previous projects possible. For more information on these projects, contact Ann Bollinger, annbollinger@carson.org

Ash Canyon Restoration — Volunteers Photo by Richard Wilkinson

Welcome New AmeriCorps Members

By: Gavin Feiger, Watershed Coordinator, Alpine Watershed Group

The Alpine Watershed Group (AWG) and River Wranglers (RW) welcome two new AmeriCorps members. Thanks to support from the Sierra Nevada AmeriCorps Partnership, AWG and RW are able to grow their education and outreach programs sharing Sarah Muskin, and AWG is enhancing its monitoring and restoration programs hosting Alyson Cheney. Please join us in welcoming Sarah and Aly to the area and thanking them for their service.



Sarah Muskin

Sarah Muskin, Education & Outreach Coordinator Alpine Watershed Group and River Wranglers

Sarah grew up in coastal New England and spent her summers exploring the Green Mountains of Vermont as a camp counselor. She recently graduated from Vassar College in Poughkeepsie, New York with a B.A. in Environmental Studies. In 2015, she travelled to Tanzania with the School of International Training to study "Wildlife Conservation and Political Ecology." Sarah has engaged in water related topics not only through her academic courses in environmental management and ecology, but also in an independent study project about water borne disease prevention that she completed while in Tanzania on the Coast of Lake Victoria. Sarah is passionate about stewardship, environmental health, and social justice. In her free time, Sarah enjoys running, hiking, reading, gardening, and learning new skills. Sarah will be spending half her time with the AWG and the other half with River Wranglers.



Alyson Cheney

Alyson Cheney, Restoration & Monitoring Coordinator Alpine Watershed Group

Aly grew up in Boulder Colorado, where her love of wild rivers and big mountains began. She carried these passions into her education at Connecticut College where she majored in Environmental Studies and Economics. Both in her senior project and research abroad, Aly explored how residents and tourists value the ecosystem services provided by local watersheds. During her collegiate summers, Aly worked for the Tuolumne River Trust. While paddling the Tuolumne from the Sierra to the sea, Aly reaffirmed her passion for water conservation as a career. Since graduating Aly has been guiding rapids on the American River and backpacking in Costa Rica. She is excited to get back to California, to participate in some hands on restoration work and ski some Tahoe powder!

Comments Sought on Carson City Stormwater Management Program Update

By: Robb Fellows, Chief Stormwater Engineer, Carson City Public Works

Carson City Storm Water Management Program, in place since 2003, is in the process of a program update as required under the Small Municipal Separate Sewer System (MS4) National Pollution Discharge Elimination Systems (NPDES) permit. Many citizens don't realize that stormwater (precipitation, generally rain and melting snow) is not treated and that surface water from storms that flow through the city's storm drains eventually reach the river. Carson City's program works to reduce the amount of pollutants that enter our stormwater system. The main focus of the program is to look at how the people of Carson City can change everyday to prevent or reduce polluting our lakes, creeks, and rivers.



Polluted Stormwater Entering Storm Drain

Under the updated program, seven distinct areas or control measures are addressed as outlined below :

Public Education and Outreach

- Continue direct mailing in January and July to all developed parcels in the city.
- Continue providing worksheets to all second and fourth grade students.
- Continue direct mailing to all lawn care businesses in the City.
- Continued use and promotion of the hazardous material/used oil collection program.
- Continue to improve storm water website. Show a 5% increase of website visits each year from unique visitors.
- Continue to collaborate with Carson Water Subconservancy District (CWSD) on a watershed wide outreach. Participate in at least two outreach meetings or events each year.
- Implement an "Adopt a Watershed" program by August 22, 2017.

Public Involvement/Participation

- Continue to maintain storm water website and hotline with a 10% annual increase in calls made to the hotline.
- Continue to support and participate in CWSD activities.
- Develop/Implement "Adopt a Watershed" program by August 22, 2017.

Post-Construction Site Storm Water Management

- Continue to review the adequacy of the storm water utility and fees.
- Continue Implementation of inspection program for existing storm water quantity and quality control facilities.
- Continue to enforce post construction BMP maintenance ordinance, CCMC 12.18.
- Develop and adopt Low Impact Development (LID) standards and incorporate them into Stormwater Division 14 of the Development

Conserve Carson River Work Days 2016

By: Linda Conlin, Director, River Wranglers

As the autumn leaves on the majestic cottonwood trees begin to fall and frost covers the ground, elementary and teen River Wranglers can be found on the banks of the Carson River. They are cutting willows, creating bundles and planting them on the river bank. The students understand they are helping prevent erosion and look forward to seeing the willows leaf out in the springtime as the willow roots begin holding soil in place.



Carson River Work Day

Students from Douglas High School FFA, Dayton High's zoology, environmental science and marine science classes and Silver Stage High School's zoology classes participated in River Wranglers training so they could become 4th grade mentors. Then they worked with a small group of elementary students at various sites on the river and taught them about the Carson River watershed, nonpoint source pollution, the water cycle and animal adaptations - how animals living in our watershed adapt to their environment.

Since 1995 students have gathered at the river to celebrate Conserve Carson River Work Days and

explore the habitat while participating in conservation projects. This fall 118 high school students and 532 elementary students participated in Douglas and Lyon counties. With support from Carson Valley Conservation District employees Mike Hayes and Craig Burnside, as well as Dayton Valley Conservation District employees Rob Holley, Stacy Mathis and Robert Fillippini, students learned hands-on about the value of trees in preventing erosion.

The River Wranglers trio; Sarah Muskin (AmeriCorps volunteer), Becki Schwindt (environmental educator) and Linda Conlin (director) worked tirelessly to spend time before the field trip in the classroom, training teens and educating 4th graders about the history of the Carson River watershed. River Wranglers coordinates the field trips and then the trio are back in the classroom again administering the post-event evaluation and reviewing activities. *"Every workday fills me with hope for the future health of the river. The hope is in the look of resolve in their eyes and the optimism in their voices when these kids figure out that they have the ability to be an important part of improving the quality of water in their watershed,"* said Schwindt.



Carson River Work Day

The result of Conserve Carson River Work Days (CCRWD) is extremely positive. Teen students, once 4th grade participants, are now returning as mentor educators and have traveled full circle. Being outdoors; learning, observing and working, CCRWDs fulfills our kids need and desire to be aware of their environment; the quality of their water...the quality of their life. Thank you to the Carson Water Subconservancy District and NDEP's 319 grant program for helping fund these inspiring events.

(Restoring Meadows in the Upper Carson River Watershed , continued from page 1)

eroding banks contribute sediment to the river and reduce woody riparian cover that cools the river and provides habitat. American Rivers worked with partners and stakeholders to plan and develop restoration designs and implement the project. The first phase of restoration was completed in fall of 2015 and the second Phase was completed October 2016. Approximately one mile of stream channel, located on US Forest Service and California Department of Fish and Wildlife land in Hope Valley Meadow, has been restored using bank stabilization and revegetation techniques. The project reduces erosion, improves floodplain connectivity, and enhances aquatic and wet meadow habitat for birds, fish and other wildlife. This large-scale project was funded by the National Fish and Wildlife Foundation, the Sierra Nevada Conservancy, the California Wildlife Conservation Board, the California Department of Water Resources, the Wildlife Conservation Society, and the Bella Vista Foundation.

[Click here to watch a video of the construction](#)



Hope Valley CA — Meadow Restoration
Photo by Shane Fryer

Carson River Watershed Meadow Assessment

American Rivers and our partners recognized the need to assess and prioritize meadow restoration in the Sierra, as the lack of basic knowledge regarding these meadows has limited restoration efforts in this area. To remedy this issue, American Rivers developed the Meadow Condition Scorecard in 2010 with support from the National Fish and Wildlife Foundation and in collaboration with the US Forest Service, UC Davis. The Meadow Condition Scorecard is a methodology to quickly assess the overall condition and restoration potential of a meadow, and provide data to prioritize sites for restoration. American Rivers applied the scorecard in the Upper Carson Watershed in 2014 evaluating all accessible meadows for restoration potential (See Assessment Map on Page 1). American Rivers and partners are now collaborating with stakeholders to identify priority sites for restoration based on the scorecard results. The first round of analyses identified Faith Valley Meadow, upstream of Hope Valley, as a top priority. American Rivers has received funding from the National Fish and Wildlife Foundation to begin project planning and restoration could start next season. American Rivers plans to continue to work with stakeholders to identify addition restoration priorities.

For more information on American Rivers work in the Upper Carson River Watershed, contact Julie Fair at American Rivers: jfair@americanrivers.org.

(Comments Sought on Carson City Stormwater Management Program Update, continued from page 4)

Construction Site - Runoff Control

- Continue to maintain stormwater hotline and Carson City Connect.
- Continue to enforce BMPs for construction site erosion and sediment control as required by the Development Standards, Division 13.
- Continue to train staff in construction site erosion/sediment control management and enforcement methods per the training policy.

Illicit Discharge Detection and Elimination

- Continue regular updates to the storm sewer map.
- Continue to enforce illicit discharge program ordinance.
- Continue to maintain stormwater hotline.
- Continue to inspect the storm drain system, inspection of 20% of the system annually.
- Continue to monitor stormwater outfalls.
- Complete GIS data base transfer for the storm sewer map by November 16, 2017.
- Continue to train staff in illicit detection program and procedures.
- Continue to operate and promote the hazardous material/used oil collection program.

Pollution Prevention/Good Housekeeping for Municipal Operations

- Continue to follow the procedures of the Good Housekeeping Program.
- Continue to collaborate with CWSD and other governmental agencies in the watershed to implement pollution prevention/good housekeeping programs.
- Continue to follow Integrated Pest Management program.
- Continue to train Public Works and Parks staff per City policy.
- Update the Municipal Pollution Prevention/Good Housekeeping program and Integrated Pest Management program by Aug 29, 2017.

Clear Creek Master Storm Water Management Program (CCSWMP)

- Continue to collaborate with all entities within the watershed under the approved CCSWMP.
- Include any specific BMP that relates to the Clear Creek watershed in the LID standards and incorporate them into Stormwater Division 14 of the Development Standards.

The public comment period began November 7 and will end January 4, 2017. Please visit the City's storm water website at www.carsonsw.org then navigate to Stormwater Management drop down tab then to Storm water Management Program Update 2016 tab. Use the "click here" to view the full document. To send comments on the Program Update to Public Works, use the "Email Us" on the right side of the web page.

If you have specific questions, please contact Robb Fellows, P.E., Rfellows@carson.org.

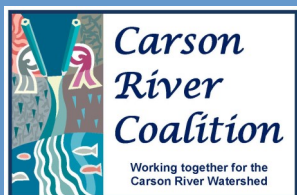
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Upcoming Events

*Happy Holidays from the CWSD and CRC!
Have a safe and festive New Years!*

January 1st, 2017
Nevada State Parks: First Hike
- Fort Churchill SP (12:30pm-3:00pm)
bucklandstation@hdiss.net
- Dayton Valley (2:30pm-3:30pm)
washoelake@hdiss.net
- Washoe Lake SP (10:00am-12:00pm)
washoelake@hdiss.net

January 4th, 2017
Carson City Storm Water Management Program Update Comment Period Ends
www.carsonsw.org

January 11-12, 2017, Two Day Annual Winter Weed Conference
Eastern Nevada Landscape Coalition
www.envlc.org

January 14, 2017, 8:00am-6:00pm
2nd School Garden Conference
Nevada Department of Agriculture
Ashley Jeppson, ajeppson@agri.nv.gov

January 28, 2017, 8:30am-5:00pm
DRI STEAM Teacher Training, NV Museum of Art, [Register Here](#)

January 26-29, 2017: Eagles & Ag in Douglas County, www.carsonvalleynv.org/pages/eaglesag/

February 14-16, 2017
Nevada Water Resources Association Reno, NV, [Register Here](#)

February 21, 2017, 9:00 - 4:30: EPA & NDEP Mercury Superfund Site Tour
Carson Water Subconservancy District
Shane@cwsd.org

February 22-23, 2017, 9:00 - 4:30
Carson River Watershed Management Forum, Carson City Community Center
Shane@cwsd.org



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